

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

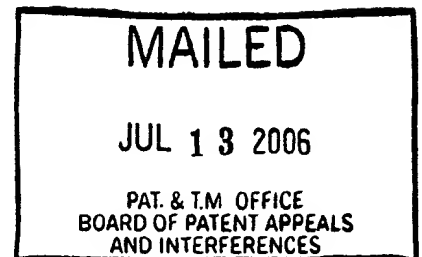
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SAE-YOUNG CHUNG and HUI-LING LOU

Appeal No. 2006-0439
Application No. 09/765,754

ON BRIEF



Before THOMAS, BLANKENSHIP, and HOMERE, Administrative Patent Judges.

THOMAS, Administrative Patent Judge.

DECISION ON APPEAL

Appellants have appealed to the Board from the examiner's final rejection of claims 1 through 15, 17 and 19 through 25, appellants having canceled claim 16 and the examiner having allowed independent claim 18.

Representative independent claim 1 is reproduced below:

1. A method for multilevel coding of a stream of information bits in a communication system, the method comprising the steps of:

separating the stream of information bits into a plurality of different portions;

associating each of the portions of the information bits with one of a plurality of levels;

applying at least one code to the portion of the information bits of each level in a designated subset of the plurality of levels such that the portions of the information bits for one or more levels in the designated subset are coded while the portions of the information bits for one or more levels not in the designated subset are uncoded; and

utilizing both the coded portions of the information bits and the uncoded portions of the information bits to select modulation symbols for transmission in the system;

wherein the stream of information bits comprises at least one frame of information bits separated into a plurality of different classes of bits, each class of bits comprising a plurality of contiguous bits of the frame, and wherein each of the portions of the stream of information bits comprises a corresponding one of the different classes of bits within the at least one frame, and wherein the at least one code is selected so as to provide different amounts of error protection for at least a subset of the different classes of bits.

The following references are relied on by the examiner:

Fazel et al. (Fazel)	5,323,424	Jun. 21, 1994
Chouly et al. (Chouly)	5,416,801	May 16, 1995
Cloonan	5,566,193	Oct. 15, 1996
Klayman et al. (Klayman)	5,841,378	Nov. 24, 1998
Herzberg	5,970,098	Oct. 19, 1999

Claims 1 through 4, 6 through 8, 17, 19, 23 and 25 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Fazel. All remaining claims on appeal stand rejection under 35 U.S.C. § 103. As evidence of obviousness as to claim 9 through 13 and 20 through 22, the examiner relies upon Fazel only, to which the examiner has added Herzberg and Clayman as to claims 5 and 15, separately added Cloonan as to claim 14, and separately added Chouly as to claim 24.

Rather than repeat the positions of the appellants and the examiner, reference is made to the brief and reply brief for appellants' positions, and to the answer for the examiner's positions.

OPINION

Generally, for the reasons set forth by the examiner in the examiner's rather detailed consideration of the teachings of Fazel as applied to the claims on appeal, as amplified and emphasized here, we sustain the rejections of all claims on appeal. The first stated rejection under 35 U.S.C. § 102 includes independent claims 1, 17, 23 and 25. Only the subject matter of independent claims 1 and 17 in this rejection are argued in the brief. Moreover, the appellants rely upon the arguments as to representative independent claim 1 on appeal to urge patentability for each of the separately recited rejections under 35 U.S.C. § 103 relying on Fazel only or additional prior art. Appellants' remarks as to the separate rejection under 35 U.S.C. § 103 of independent claim 24 at page 9 of the principal brief on appeal does not argue against the combinability within 35 U.S.C. § 103 of Chouly and does not contest or challenge what the examiner says this reference teaches. Essentially, the same may be said of the additional prior art relied on by the examiner in the other rejections under 35 U.S.C. § 103.

Of the subject matter of representative independent claim 1 on appeal, the focus of appellants' arguments is the feature recited therein of "each class of bits comprising a plurality of contiguous bits of the frame." It was the amendment filed by appellants on June 28, 2004 in this application that led to the introduction of the entire wherein clause of representative independent 1 on appeal of which the quoted material is a part. The justification for this additional material added to claim 1 was said at page 10 of the remarks of the amendment to be based upon the illustrated embodiments in figures 5 and 6 as well as their corresponding discussion at specification page 9, line 24 through page 11, line 4. However, there is no discussion or showing among these respective portions of the specification as filed which justifies the inclusion of the term "contiguous" as a basis to characterize the presently claimed invention on appeal. While it may be fairly characterized that these portions of the specification as filed generally indicate that a class of bits comprise a plurality of bits, they are not necessarily recited in the noted portion to be contiguous to each other within a given class or between classes.

With this understanding, we are in full agreement with the examiner's analysis in the answer. The claims do not recite and the specification does not indicate that the claimed "stream of information" is a serial bit stream of information, nor do the claims recite and the specification justify that any particular related bits within a class are serially presented. Appellants' apparent definition of the word "contiguous"

appears to indicate that they are merely adjacent bits at the top of page 5 of the principal brief on appeal. Therefore, it appears plain to us that any serial teachings of data bits within a characterized class of bits as well as any parallel characterization of plurality of bits forming the claimed class of bits in Fazel would meet the limitation.

The data stream 34 in figure 3 of Fazel appears to correspond to the claimed data stream from our prospective as well as the examiner's approach. Each of the respective levels D in figure 3 of Fazel at the output of the serial/parallel converter 30 would appear to us to be in the form of parallel data, which clearly falls within the ambit of the contiguous or otherwise adjacent bits as argued and claimed notwithstanding the questionable bases in which this feature is recited as derived from the specification as filed. Contiguous is not a term used in the specification as filed in any manner to describe the bit stream or the nature of the bit arrangement of the classes of bits.

The examiner's responsive arguments beginning at page 14 of the answer appear to be consistent with our study of this reference, that is, that a parallel bit stream for each separate data rate or level D is parallel data. The use of separate encoders 31 in figure 3 of this reference clearly indicates that there are separate classes or levels of coding to be undertaken before the modulator 32 performs its function to the extent Fazel teaches multilevel coding of an information data stream. We therefore agree with the examiner's observation that appellants' characterization in the

principal brief on appeal is incorrect that the output of this serial/parallel converter 30 provides one bit for each labeled D level among the plurality shown there. Moreover, the characterization of the encoders as being operative with respect to n representing the number of bits transmitted per block and k representing the number of information bits transmitted per block clearly suggest the plurality of parallel bits operated within each encoder 31 from the output levels D of converter 30. This is also buttressed by the characterization also at the bottom of column 6 of Fazel of the reference operating upon block coded information. Moreover, the discussion at the top of column 7 also indicates that plural bits appear to be assigned for each level for encoding purposes. Therefore, each block of information may correspond in the reference to the claimed classes.

We do not agree with appellants' views expressed at page 1 and 2 of the reply brief that Fazel does not discuss the word frames of information in any context. Although it is true that Fazel does not specifically mention frames per se, there are significant teachings of the types of data that are contemplated by this reference including digital television and radio information at column 1; a corresponding discussion at column 4, lines 22 through 25; the discussion beginning at column 5, line 26 and the additional teachings beginning at column 12, line 30 as the examiner has argued in the answer with respect to various rejections. Digital TV utilizes a frame-based information transfer approach.

As to the remarks at page 2 of the reply brief, it is independent claim 1 that requires that the respective bits within any given class be contiguous, whereas the respective classes do not have to contiguous with each other in the context of claim 1. Additionally, there is no requirement that the frames themselves be contiguous with respect to each other, such as in independent claim 17 on appeal. Appellants' observation at page 2 of the reply brief that there is no requirement in Fazel that each of the particular blocks of bits necessarily comprises contiguous bits of a frame is therefore misplaced.

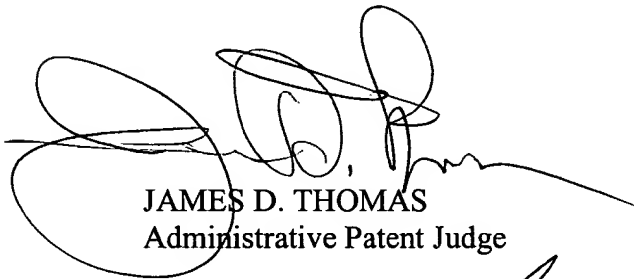
Lastly, as to the separate arguments in the brief with respect to dependent claims 21 and 22 at pages 8 and 9 of the principal brief on appeal to the extent they are rejected under 35 U.S.C. § 103 over Fazel only, we agree with the examiner's analysis in the statement of the rejection at page 11 of the answer as well as the responsive arguments at pages 17 through 19 of the answer. Appellants' own specification contemplates at specification page 4, lines 5 through 8 and the discussion of any type digital information coding at specification page 13, line 18 through page 14, line 2 that appellants' disclosed invention relates to a variety of applications of use. The examiner has made similar arguments in the noted portions of the answer even through the examiner has utilized to some extent the highly disfavored term "design choice" or "design option" as characterizing his position. But what is noteworthy of the examiner's analysis, however, is that the examiner has explained

the context of meaning of the use of these concepts. Essentially, they relate to the same teachings appellants' specification has prospectively made as just noted, as well as the earlier-noted teachings in Fazel of various types of modulation schemes and uses we have pointed out earlier in this opinion. With respect to a particular choice of level 5 or 4 as recited in claims 21 and 22, respectively, in addition to the respective ranges noted there, we agree with the examiner's view that it would have been obvious to have optimized the choice of levels (result effective variables) in these respective ranges for a given environment of use to the extent noted in the answer.

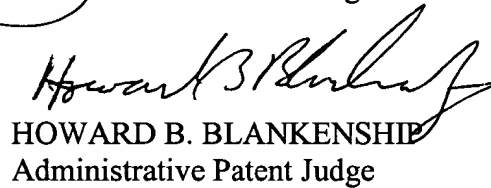
In view of the foregoing, we affirm the examiner's rejections of various claims under 35 U.S.C. § 102 and 35 U.S.C. § 103.

No time period for taking any subsequent action in connection with
this appeal may be extended under 37 CFR § 1.136(a)(1)(iv).

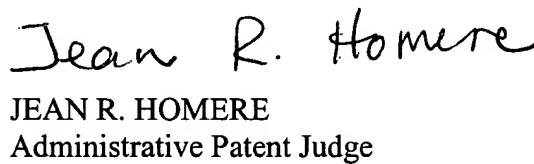
AFFIRMED



JAMES D. THOMAS
Administrative Patent Judge



HOWARD B. BLANKENSHIP
Administrative Patent Judge



JEAN R. HOMERE
Administrative Patent Judge

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